

IN THE CLAIMS

Please amend the claims as follows.

1 1. (Currently amended) A ~~vehicle~~ mobile internetwork comprising a plurality of
2 network elements including at least one gateway node and at least one ~~vehicle-bus~~ local
3 area network coupled among at least one peripheral electronic device, wherein functions
4 of the plurality of network elements are remotely controllable, wherein the at least one
5 gateway node manipulates node information including configuration and security
6 information to provide secure interoperability among the plurality of network elements
7 and the at least one peripheral electronic device, wherein the gateway node comprises at
8 least one interface port, at least one real-time interface processor (RTIP), and at least one
9 application processor, wherein the at least one RTIP performs real-time operations and
10 the at least one application processor performs high level processing functions, wherein
11 the gateway node provides at least one of data processing, data storage, access control,
12 protocol translation, security including service discovery and device authentication, and
13 network control, wherein the gateway node controls remote access to the mobile
14 internetwork in response to intermittent external communications.

1 2. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one ~~vehicle-bus~~ local area network comprises at least one ~~bus selected from a group~~
3 ~~consisting of at least one of an~~ Original Equipment Manufacturer (OEM) bus, ~~at least one~~
4 an Automotive Multimedia Interface Consortium (AMI-C) bus, at least one external
5 network, and at least one local development network.

1 3. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 2, wherein the at
2 least one local development network accesses the at least one gateway node for the
3 performance of application upgrades, diagnostics, and programming.

1 4. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 2, wherein the at
2 least one local development network supports manipulation and transfer of entertainment
3 software, wherein the entertainment software comprises at least one entertainment feature

4 ~~selected from a group consisting of a~~ including video, audio, movies, television shows,
5 music, games, and simulations.

1 5. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one vehicle bus comprises at least one legacy automotive bus ~~selected from a group~~
3 ~~consisting of~~ including at least one of Audio Control Protocol (ACP) buses and Standard
4 Corporate Protocol (SCP) buses.

1 6. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one peripheral electronic device comprises at least one device coupled to at least one
3 OEM bus, ~~selected from a group consisting of~~ wherein the device includes at least one of
4 climate control devices, actuator devices, position location devices, Global Positioning
5 System (GPS) devices, communication devices, cellular telephony devices, processing
6 devices, diagnostic devices, modems, video devices, audio devices, multimedia devices,
7 electronic game devices, sensor devices, switch devices, and device subnetworks.

1 7. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one peripheral electronic device comprises at least one device coupled to at least one
3 AMI-C bus ~~selected from a group consisting of~~ including communication devices,
4 position location devices, GPS devices, communication devices, position location
5 devices, processing devices, modems, video devices, audio devices, multimedia devices,
6 electronic game devices, personal digital assistants (PDAs), and wireless local area
7 network (LAN) devices.

1 8. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one gateway node comprises at least one interface port ~~selected from a group~~
3 ~~consisting of~~ that is at least one of Intelligent Data Bus (IDB-C) ports, MOST ports,
4 Institute of Electrical and Electronics Engineers (IEEE) 1394 ports, On-Board
5 Diagnostic-II (OBD-II) ports, Bluetooth ports, Personal Communications Service (PCS)
6 ports, Global System for Mobile Communications (GSM) ports, and Ethernet ports.

1 9. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 functions are hosted on a central network element, wherein the functions are distributed
3 among the plurality of network elements in response to a coupling of additional
4 peripheral electronic devices to the at least one vehicle bus.

1 Claims 10 and 11 (canceled).

1 12. (Currently amended) The ~~vehicle~~ mobile internetwork of claim ~~11~~ 1, wherein the
2 at least one gateway node functions as an Internet Protocol (IP) router, wherein the at
3 least one RTIP comprises a high-speed bus controlled by at least one coupled device.

1 13. (Currently amended) The ~~vehicle~~ mobile internetwork of claim ~~11~~ 1, wherein the
2 at least one interface port has at least one function ~~selected from a group consisting of~~
3 that includes at least one of a tag, a bridge, and an interface.

1 14. (Currently amended) The ~~vehicle~~ mobile internetwork of claim ~~11~~ 1, wherein the
2 at least one interface port includes at least one ~~port selected from a group consisting of~~
3 wired communication ports and wireless communication ports.

1 15. (Currently amended) The ~~vehicle~~ mobile internetwork of claim ~~10~~ 1, wherein the
2 at least one gateway node includes a first gateway coupled to a second gateway.

1 Claim 16 (canceled).

1 17. (Currently amended) The ~~vehicle~~ mobile internetwork of claim ~~10~~ 1, wherein the
2 at least one gateway node couples a first vehicle bus and a second vehicle bus, wherein
3 the at least one interface port node couples the at least one vehicle bus to the at least one
4 peripheral electronic device.

1 Claims 18, 19, 20, and 21 (canceled).

1 22. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one gateway node comprises at least one hybrid switch, wherein the at least one
3 hybrid switch includes at least one interface port coupled among at least one switch of a
4 first speed and at least one switch of a second speed, wherein each of the at least one
5 switch of a first speed and the at least one switch of a second speed are coupled to at least
6 one port.

1 23. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1 ~~+~~ 22, wherein the
2 at least one hybrid switch distributes at least one switching function among the plurality
3 of network elements of a host vehicle.

1 24. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 22, wherein at
2 least one application of a first type is coupled through the ~~at least one~~ interface port to the
3 at least one switch of a first speed, wherein at least one application of a second type is
4 coupled through the ~~at least one~~ interface port to the at least one switch of a second
5 speed.

1 25. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one gateway node couples to at least one subnetwork, wherein the at least one
3 subnetwork comprises at least one ~~device selected from a group consisting of~~ sensor
4 devices, actuator devices, wired network devices, and wireless network devices.

1 26. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, further
2 comprising at least one router that couples to the Internet using at least one ~~device~~
3 ~~selected from a group consisting of at least one~~ bus and at least one communication
4 device, wherein the at least one bus ~~selected from a group consisting of~~ includes at least
5 one of an IEEE 1394 bus, a MOST bus, an IDB-C bus, and an Ethernet bus, wherein the
6 at least one communication device ~~selected from a group consisting of~~ includes at least
7 one of a Bluetooth modem, an IEEE 802.11 radio, and a mobile telephone.

1 27. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at

2 least one gateway node generates at least one hierarchy of communication alternatives in
3 response to a determined position of a host vehicle, wherein a selected communication
4 alternative is used to communicate with at least one local site.

1 28. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein data
2 processing is controlled using at least one processing hierarchy that controls at least one
3 event ~~selected from a group consisting of~~ including at least one of data classifications,
4 data transfers, data queuing, data combining, processing locations, and communications
5 among the plurality of network elements.

1 29. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 functions are distributed among the plurality of network elements.

1 30. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 functions of the at least one gateway node include at least one ~~function selected from a~~
3 ~~group consisting of~~ data acquisition, data processing, communication management, data
4 routing, data security, programming, node operation, protocol translation, network
5 management, and interfacing with at least one communication physical layer including
6 cellular telephony, wireline telephone, satellite telephony, packet radio, microwave,
7 optical.

1 31. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 30, wherein data
2 processing functions of ~~at least one the~~ peripheral electronic device are distributed among
3 at least one other processor ~~selected from a group consisting of the~~ that includes a
4 processor of the at least one gateway node and the at least one peripheral electronic
5 device.

1 32. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one gateway node implements at least one security method ~~selected from a group~~
3 ~~consisting of~~ that includes at least one of confounder codes, encrypted transmissions,
4 security policy-based communication protocols, blocking coupling with unauthorized

5 devices, and blocking commands from at least one class of device.

1 33. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 32, wherein the
2 at least one security method is implemented in the at least one gateway node and at least
3 one port node.

1 34. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 32, wherein the
2 at least one security method includes blocking denial of service attacks by decoupling at
3 least one interface port ~~node~~ through which unauthorized access is attempted and
4 blocking at least one application at a the interface port ~~node~~.

1 35. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 32, wherein the
2 at least one security method further includes at least one ~~method selected from a group~~
3 ~~consisting of an ignition~~ a key, a password device, and a security display.

1 36. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 32, wherein the
2 at least one security method further includes a designated authorization port, wherein at
3 least one connector is coupled to the designated authorization port to receive
4 authorization for coupling a device to the plurality of network elements.

1 37. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 plurality of network elements automatically organize in response to the node information,
3 wherein the automatic organizing comprises automatically controlling data transfer,
4 processing, and storage among the plurality of network elements.

1 38. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein at
2 least one level of synchronization is supported among different subsets of the plurality of
3 network elements, wherein a first level of synchronization is supported among a first
4 subset of the plurality of network elements, wherein a second level of synchronization is
5 supported among a second subset of the plurality of network elements.

1 39. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 plurality of network elements are self-assembling, wherein search and acquisition modes
3 of the at least one gateway node search for participating ones of the plurality of network
4 elements, wherein a determination is made whether each of the participating ones of the
5 plurality of network elements are permitted to join the ~~vehicle~~ internetwork using a
6 message hierarchy, wherein the plurality of network elements are surveyed at random
7 intervals for new nodes and missing nodes.

1 40. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 plurality of network elements are self-assembled into a multi-cluster network, wherein a
3 start node is selected as a base node, wherein the base node communicates an assembly
4 packet throughout the ~~vehicle~~ mobile internetwork, wherein information of the assembly
5 packet alternates with each successive communication between directing a node to
6 become a base node of a particular cluster number and directing a node to become a
7 remote node of a particular cluster number, wherein the particular cluster number is
8 incrementally changed with each successive communication of the assembly packet.

1 41. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 least one gateway node performs service discovery, ~~wherein service discovery that~~
3 comprises synchronizing the ~~at least one~~ gateway node, authenticating the ~~at least one~~
4 gateway node, determining at least one communication mode for the ~~at least one~~ gateway
5 node, and informing the ~~at least one~~ gateway node of resources available among the
6 plurality of network elements.

1 42. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein data is
2 collected by the ~~at least one~~ gateway node, wherein at least one operation is performed on
3 the data in response to parameters established by a user, the at least one operation
4 ~~selected from a group consisting including at least one~~ of classification, routing,
5 processing, storing, and fusing.

1 43. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 42, wherein the

2 data is vehicle diagnostic data, wherein diagnostic operations are performed in response
3 to the data.

1 44. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 42, wherein
2 routing comprises selecting at least one communication type and at least one
3 communication coupling for use in routing the collected data.

1 45. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 42, wherein
2 routing comprises selecting at least one data type for routing, selecting at least one of the
3 plurality of network elements to which to route the selected data, selecting at least one
4 route to the selected ~~at least one of the plurality of network elements~~ network element,
5 and routing the selected at least one data type to the selected at least one of the plurality
6 of network elements.

1 46. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 42, wherein
2 processing comprises selecting at least one data type for processing, selecting at least one
3 processing type, selecting at least one of the ~~plurality of network elements~~ to perform the
4 selected ~~at least one~~ processing type, and transferring data of the selected ~~at least one~~ data
5 type to the selected ~~at least one of the plurality of network elements~~ using at least one
6 route through the ~~sensor~~ network.

1 47. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 46, wherein data
2 processed in a plurality of nodes is aggregated for further processing by other nodes.

1 48. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 46, wherein data
2 processed by the ~~at least one~~ gateway node is aggregated for reporting to at least one
3 user.

1 49. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 42, wherein
2 storing comprises selecting at least one data type for storage, selecting at least one
3 storage type, selecting at least one of the ~~plurality of network elements~~ to perform the

4 selected ~~at least one~~ storage type, and transferring data of the selected ~~at least one~~ data
5 type to the selected ~~at least one of the plurality of~~ network elements using at least one
6 route through the plurality of network elements.

1 50. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 42, wherein
2 using comprises a first node transmitting at least one query request to at least one other
3 node, wherein the first node collects data from the at least one other node in response to
4 the at least one query request, and processes the collected data.

1 51. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 plurality of network elements comprise a plurality of application programming interfaces
3 (APIs), wherein the APIs include APIs for at least one of application support, database
4 services, routing, security, network management, and deployment.

1 52. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 51, wherein the
2 APIs for application support, database services, and routing are hosted on at least one
3 gateway node, wherein the APIs for security, network management, and deployment are
4 shared among at least one other gateway node and at least one port node.

1 53. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 51, wherein the
2 plurality of APIs are layered, wherein the plurality of APIs enable distributed resource
3 management by providing network resource information among the plurality of network
4 elements, wherein information transfer among the plurality of network elements is
5 controlled using a synchronism hierarchy established in response to the network resource
6 information.

1 54. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 plurality of network elements support atomic transaction methods.

1 55. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 ~~least one~~ gateway node includes sensing, processing, communications, and storage

3 devices supporting a plurality of processing and protocol layers.

1 56. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 ~~least one gateway node~~ supports at least one ~~communication mode selected from a group~~
3 ~~consisting of wireless communications~~ communication modes, wired ~~communications~~
4 communication modes, and hybrid wired and wireless ~~communications~~ communication
5 modes.

1 57. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 ~~least one gateway node~~ is coupled to the at least one remote computer using the plurality
3 of network elements, wherein the plurality of network elements includes at least one
4 ~~element selected from a group consisting of~~ at least one station gateway, at least one
5 server, at least one repeater, at least one interrogator, and at least one network, wherein
6 the at least one network includes wired networks, wireless networks, and hybrid wired
7 and wireless networks.

1 58. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 57, wherein the
2 at least one network comprises at least one ~~network selected from a group comprising of~~
3 the Internet, local area networks, wide area networks, metropolitan area networks, and
4 information service stations.

1 59. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 57, wherein the
2 plurality of network elements provides remote accessibility using World Wide Web-
3 based tools to data, code, control, and security functions, wherein data includes signals,
4 wherein code includes signal processing, decision support, and database elements, and
5 wherein control includes operation of the plurality of network elements.

1 60. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 plurality of network elements comprise a plurality of network element sets, wherein the
3 plurality of network element sets are layered.

1 61. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 ~~least one gateway~~ node comprises a plurality of node types, ~~wherein the plurality of node~~
3 ~~types that~~ includes at least one node of a first type and at least one node of a second type,
4 wherein a first network having a first node density is assembled using the at least one
5 node of a first type, wherein a second network having a second node density is assembled
6 using the at least one node of a second type, wherein the second network is overlaid onto
7 the first network.

1 62. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein
2 software and data are transferable among the plurality of network elements, wherein the
3 transfer is remotely controllable, wherein the software and the data are downloadable
4 from at least one location selected from a group consisting of storage devices of the
5 plurality of network elements, external storage devices, and remote storage devices.

1 63. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the
2 plurality of network elements are managed as a distributed and active database using a
3 distributed resource management protocol, wherein the plurality of network elements are
4 reused among different applications, wherein the network elements are used in multiple
5 classes of applications.

1 64. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, further
2 comprising at least one database, wherein the at least one database includes at least one
3 ~~storage device selected from a group consisting of~~ storage devices coupled to at least one
4 of the plurality of network elements and storage devices of the ~~at least one gateway~~ node.

1 65. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein at
2 least one coupling among the ~~at least one gateway~~ node and at least one external network
3 supports data transfer among the ~~at least one gateway~~ node of a host vehicle, wherein the
4 data includes vehicle service data, diagnostic data, maintenance history data, security
5 data, electronic mail, and entertainment software.

1 66. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein at
2 least one coupling among the at least one peripheral electronic device and at least one
3 external network supports data transfer among the ~~at least one~~ gateway node of a host
4 vehicle, wherein the data includes vehicle service data, diagnostic data, maintenance
5 history data, security data, electronic mail, and entertainment software.

1 67. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 ~~least one~~ gateway node is coupled to at least one diagnostic device of a host vehicle.

1 Claim 68 (canceled).

1 69. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein the at
2 ~~least one~~ gateway node manipulates at least one data item selected from a group
3 ~~consisting~~ of vehicle assembly data, vehicle maintenance data, vehicle diagnostics data,
4 vehicle position data, vehicle operations profile data, fleet management data, fleet
5 reliability analysis data, security system data, entertainment system data, and targeted
6 advertising data.

1 70. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 1, wherein at
2 least one subset of the plurality of network elements comprise at least one sensor
3 network, wherein the at least one subset further includes at least one sensor node, at least
4 one gateway station, at least one server, at least one gateway network, and at least one
5 client computer hosting a World Wide Web browser, wherein the at least one node is
6 configured as the at least one gateway station and the at least one sensor node.

1 71. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 70, wherein the
2 at least one sensor node is coupled among a monitored environment and the at least one
3 client computer, wherein functions of the at least one sensor node are remotely
4 controllable using the at least one client computer, wherein the at least one sensor node
5 provides the node information including node resource cost and message priority to the
6 plurality of network elements, wherein data processing is distributed among the plurality

7 of network elements in response to the node information

1 72. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 70, wherein at
2 least one redundant communication pathway is established among the plurality of
3 network elements.

1 73. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 70, wherein the
2 at least one gateway station performs at least one ~~function selected from a group~~
3 consisting of protocol translation, sensor network management, management of
4 transmissions from a remote user, and interfacing with at least one communication
5 physical layer including wired local area networks, packet radio, microwave, optical,
6 wireline telephony, cellular telephony, and satellite telephony.

1 74. (Currently amended) The ~~vehicle~~ mobile internetwork of claim 70, wherein the
2 at least one gateway network includes wired networks, wireless networks, and hybrid
3 wired and wireless networks, wherein the at least one gateway network comprises at least
4 one network selected from a group comprising of the Internet, local area networks, wide
5 area networks, metropolitan area networks, and information service stations.

1 Claim 75 (canceled).

1 76. (Currently amended) A ~~vehicle~~ mobile internetwork, comprising:
2 means for coupling a plurality of network elements including at least one node
3 and at least one ~~vehicle-bus~~ local area network among at least one peripheral electronic
4 device, wherein the means for coupling includes at least one interface means, at least one
5 first processing means for performing real-time processing operations and at least one
6 second processing means for performing high level processing operations, wherein the
7 means for coupling provides at least one of data processing, data storage, access control,
8 protocol translation, security including service discovery and device authentication, and
9 network control, wherein the means for coupling controls remote access to the mobile
10 internetwork in response to intermittent external communications;

- 11 means for manipulating node information including configuration and security
12 information;
13 means for automatically assembling and configuring the plurality of network
14 elements in response to the node information;
15 means for remotely controlling at least one function of the plurality of network
16 elements; and
17 means for providing secure interoperability among the plurality of network
18 elements in response to the node information.
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